

or a Fahrenheit attached thermometer may be used with a metric scale. In all such cases the temperature must be brought into the same system of units as the observed scale reading before corrections can be applied, and the observed reading must then be corrected for temperature before any conversion of the scale units can be made.

It need hardly be said that the foregoing remarks do not apply to readings of aneroid barometers whose corrections for temperature and instrumental error can not be definitely tabulated, each instrument requiring a specific table peculiar to that one instrument. These corrections are too generally quite ignored and not applied.

The proper course, in case barometric readings must be converted from one system of units to another, is to apply all known corrections expressed in the same system of units as that in which the observed scale reading is taken and then convert the corrected reading.

#### WEST INDIAN SERVICE.

By Prof. E. B. GARRIOTT, in Charge (dated August 3, 1898).

By virtue of an Act of Congress, approved July 7, 1898, the Chief of the Weather Bureau, under the direction of the Secretary of Agriculture, was authorized, through proper diplomatic channels—

To establish and equip meteorological observation stations of the same general character as the stations of the Weather Bureau now maintained in the United States, at such points in the West Indies and on the coast of the mainland, bordering the Caribbean Sea, and on the islands adjacent thereto, as might be needed.

The purpose of the establishment and equipment of observation stations in the regions named was—

To have daily observations on meteorological phenomena taken at the several stations, to collect reports thereof, by cable and otherwise, and to disseminate information based thereon of the approach of tropical hurricanes or other storms to the West Indies, and to the coasts of the United States, and to collect and publish such further climatological data as might be of public benefit.

With the approval of this Act operations were actively begun to establish stations of observation and report. Communications requesting permission to do this were addressed through the proper official channels to the several European governments having jurisdiction in the West Indies, observers, skilled and trained in the work of the Bureau were selected, and the necessary instrumental equipment for stations was prepared for transportation to selected points. Observers reported their arrival at Willemstad, Curacao, July 21; at Santiago, Cuba, Kingston, Jamaica, Port of Spain, Trinidad, July 29; at Santo Domingo, Santo Domingo, and St. Thomas, August 5; at Barranquilla, Colombia, South America, August 11; at Bridgetown, Barbados, August 12; at St. Christopher (St. Kitts), August 18, and at Colon, Colombia, South America, August 29.

Observations were regularly begun at five of these, i. e., Kingston, Santo Domingo, St. Thomas, Port of Spain, and Willemstad, August 9, at Santiago, August 11, and at Bridgetown, Barbados, August 31. Similar reports have been received daily for a long time from Habana, Cuba; Nassau, Bahamas; and Hamilton, Bermuda.

The central station is located at Kingston, Jamaica, and all other stations of the system cable daily, to Washington and Kingston, reports of observations taken at 6 a. m. and 6 p. m., seventy-fifth meridian time. In the presence of unusual weather conditions, or in the event of observed premonitions of approaching hurricanes, special observations are telegraphed. In addition, and supplementary to the above-named West Indian stations, daily morning and evening reports are telegraphed (beginning August 9) to Washington via Galveston, Tex., from Tampico, Vera Cruz, and Coatzacoalcas; these stations on the Gulf of Mexico are manned and observations con-

tributed by the officials of the Mexican Telegraph Company. Daily reports are also received (beginning August 17) by telegraph from a local observer at Merida, Yucatan.

The present plan of hurricane warnings provides that upon the receipt by the Weather Bureau at Washington of telegraphic information of the development of a hurricane in the West Indian regions, warning of the location, character, and probable movement and strength of the storm be furnished at any hour of the day or night to the Chief of Bureau of Navigation, Navy Department, who has provided for a prompt transmittal of the information to our fleets in West Indian and southern waters. Similar advices will be cabled directly to West Indian and southern coast ports in the threatened district and every available means will be employed in the interest of the naval and merchant marine to give the most effective distribution to the warnings.

The service above outlined is at present an emergency service, which has been hastily organized to meet a demand on the part of naval and commercial interests for warnings of destructive storms in the Gulf, Caribbean Sea, and the West Indian Islands. It is not organized for local climatic studies, but it is confidently expected that through the cooperation of representatives of European governments having possessions in the West Indies, and of the countries bordering on the Caribbean Sea and the Gulf of Mexico on the south and west, a system of weather reporting stations can be permanently established, which will not only permit the forecasting of hurricanes and northers but allow of such a determination of the climatic conditions as will be a most important factor in developing the wonderfully rich agricultural resources of the West Indian Islands.

#### THE JAMAICA WEATHER SERVICE.<sup>1</sup>

By Mr. MAXWELL HALL, Government Meteorologist (dated August 15, 1898).

This Service was established in 1880 in order to have the usual instruments read and recorded at Kingston, the chief town in Jamaica, to encourage the registration of the rainfall throughout the Island, and to give warning of approaching hurricanes.

Mr. Robert Johnstone, F. R. Met. S., has assisted me from the first; he undertook the registration of the instruments in Kingston, and thereby allowed me to return to my private residence, the Kempshot Observatory, near Montego Bay. These places are 78 miles apart on the line of usual approach of cyclones along the Caribbean Sea. Consequently, by an exchange of telegrams Mr. Johnstone and I have been able to make out fairly well what any cyclone was doing, and to issue the proper telegraphic notice or warning.

At times, during the absence of Mr. Johnstone, I have been assisted by Mr. J. F. Brennan, who has shown unusual skill in improving self-registering instruments.

The registration of the rainfall has been encouraged by issuing a monthly weather report to all the contributors, of whom there are about 200; among these weather reports there are published any special reports or investigations.

With regard to storm warnings, according to a revised list, 38 depressions have passed within barometric range of Jamaica since the service was established, but many were so clearly

<sup>1</sup> The article here communicated in response to a request by the Editor was originally prepared by Mr. Maxwell Hall as a response to a request from the Royal Meteorological Society, and may possibly be published in abstract in connection with the annual address of its President, Hon. F. C. Bayard. With regard to the General West Indian Service, partially organized at one time by Mr. Hall, a full account will be found in his introduction to Volume I of the Jamaica Meteorological Observations. We are pleased to learn that the recent effort of the Weather Bureau to organize a West Indian system meets with Mr. Hall's heartiest approval. In fact there is every assurance of friendly cooperation on the part of all the meteorological organizations now existing in the West Indian region.—Ed.